PLEASE ENTER – LATEST SET OF CLAIMS FOR 10/782900. ANNOTATED WITH AMENDMENTS FOR EXAMINER'S AMENDMENT. /Andrew M. Gilbert/

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1-7 (Canceled).

8. (Previously presented) A fluid introduction system, comprising:

an introducer configured to introduce fluid into a spine of a patient, the introducer having a flow-rate dependent impedance opposing the introduction of the fluid and comprising a movable element disposed within the introducer, the movable element including a pressure transducer secured with respect to the movable element such that the pressure transducer is in direct contact with fluid in the introducer;

an operator configured to actuate the introducer to introduce fluid into the spine of the patient at a constant flow rate that is not controlled by feedback based on a fluid introduction parameter and configured to determine impedance data indicative of the flow rate-dependent impedance based upon pressure and volume of fluid dispensed during an actuation of the introducer prior to insertion of the introducer into the spine;

a computer readable medium having code that, when executed by a computer, receives:

fluid introduction data indicative of the fluid introduction parameter;

response data indicative of pain level of a response of the patient at a time related to a time of the fluid introduction data; and

response data, input separately from the pain level data, indicative of concordance of the response of the patient at the time related to the time of the fluid introduction data, the concordance data indicating whether the pain level response of the patient is a result of a pain symptom or is a result of pain unrelated to the pain symptom.

9. (Original) The fluid introduction system of claim 8, wherein the fluid introduction parameter is a pressure within an intervertebral disc of the patient at the time of the fluid introduction data.

10. (Original) The fluid introduction system of claim 8, wherein the fluid introduction parameter is a total amount of fluid introduced into an intervertebral disc of the patient at the time of the fluid introduction data.

11. (Original) The fluid introduction system of claim 8, wherein the fluid introduction system is configured to obtain the response data from an observation of the patient.

12. (Previously presented) The fluid introduction system of claim 8, wherein the fluid introduction system is configured to obtain the response data upon a response inputted by the patient.

13. (Original) The fluid introduction system of claim 8, wherein the introducer is configured to create a pressure of at least 100 kPa within the spine.

14. (Previously presented) A fluid introduction system, comprising:

an introducer configured to introduce a non-pulsatile flow of fluid into a spine, the introducer having a flow rate-dependent impedance opposing the introduction of the fluid; and

an operator configured to actuate the introducer, the operator including code to introduce the fluid into the spine at a constant flow rate that is not controlled by feedback based on a fluid introduction parameter and configured to empirically determine impedance data indicative of the flow rate-dependent impedance based upon pressure and volume of fluid dispensed during an actuation of the introducer prior to insertion of the introducer into the spine and to control the actuation of the introducer based at least in part upon the impedance data, wherein, using the determined impedance data, the code corrects for differences between the pressure created within the spine by the introduction of fluid and the pressure of fluid within the introducer.

15. (Original) The fluid introduction system of claim 14, wherein the introducer includes an identifier including the impedance data and the operator is configured to receive the impedance data from the identifier of the introducer.

16. (Canceled)

17. (Previously presented) The fluid introduction system of claim 14, comprising:

a pressure sensor configured to provide pressure data indicative of a pressure of fluid present in the introducer;

a fluid introduction sensor configured to provide fluid introduction data indicative of at least one of (a) a rate of fluid introduction and (b) an amount of fluid introduced into the portion of the spine; and

wherein the operator includes code to determine the impedance data based upon the pressure data and the fluid introduction data.

18. (Original) The fluid introduction system of claim 14, wherein the introducer is configured to create a pressure of at least 69 kPa within the spine.

Claims 19-37. (Cancelled)

38. (Previously presented) The fluid introduction system of claim 8, further comprising a sliding device.

39. (Previously presented) The fluid introduction system of claim 38, wherein the response data comprises data inputted directly by the patient using the sliding device.

40. (Canceled).

41. (Previously presented) The fluid introduction system of claim 8, wherein the response data comprises observed physiological parameters.

42. (CANCEL) ~~The fluid introduction system of claim 41, wherein observed physiological parameters comprises electromyographic response data.~~

43. (CANCEL) ~~The fluid introduction system of claim 41, wherein observed physiological parameters comprises audiovisual recordings of facial responses.~~

44. (Previously presented) The fluid introduction system of claim 8, wherein the response data is correlated with actual measurements of disc pressure and a volume of fluid introduced into one or more discs.

45. (Previously presented) The fluid introduction system of claim 8, wherein the introducer comprises a needle configured for insertion into a spine.

46. (Previously presented) A fluid introduction system, comprising:

an introducer configured to introduce fluid into a spine of a patient, the introducer having a flow-rate dependent impedance opposing the introduction of the fluid and comprising a movable element disposed within the introducer, the movable element including a pressure transducer secured with respect to the movable element such that the pressure transducer is in direct contact with fluid in the introducer;

an operator configured to actuate the introducer to introduce fluid into the spine of the patient at a constant flow rate that is not controlled by feedback based on a fluid introduction parameter and configured to determine impedance data indicative of the flow rate-dependent impedance based upon pressure and volume of fluid dispensed during an actuation of the introducer prior to insertion of the introducer into the spine;

a computer readable medium having code that, when executed by a computer, receives:

fluid introduction data indicative of the fluid introduction parameter; and

response data indicative of pain level and concordance of a response of the patient inputted separately by hand by the patient at a time related to a time of the fluid introduction data, wherein the concordance response data indicates whether the pain level of the patient is a result of a pain symptom or is a result of pain unrelated to the pain symptom.

47. (Previously presented) The fluid introduction system of claim 46, wherein the response data is correlated with actual measurements of disc pressure and a volume of fluid introduced into one or more discs.

48. (Previously presented) The fluid introduction system of claim 46, further comprising a sliding device.

49. (Previously presented) The fluid introduction system of claim 48, wherein the response data comprises data inputted directly by the patient using the sliding device.

50. (Canceled).

51. (CANCEL) ~~A fluid introduction system, comprising:~~

~~an introducer configured to introduce fluid into a spine of a patient;~~

~~an operator configured to actuate the introducer to introduce fluid into the spine of the patient;~~

~~a computer readable medium having code for receiving:~~

~~fluid introduction data indicative of a fluid introduction parameter; and~~

~~response data indicative of a response of the patient at a time related to a time of the fluid introduction data, wherein the response data comprises electromyographic response data.~~

52. (Previously presented) The fluid introduction system of claim 48, wherein the response data is correlated with actual measurements of disc pressure and a volume of fluid introduced into one or more discs.

53. (CANCEL) ~~A fluid introduction system, comprising:~~

~~an introducer configured to introduce fluid into a spine of a patient;~~

~~an operator configured to actuate the introducer to introduce fluid into the spine of the patient;~~

~~a computer readable medium having code for receiving:~~

~~fluid introduction data indicative of a fluid introduction parameter; and~~

~~response data indicative of a response of the patient at a time related to a time of the fluid introduction data, wherein the response data comprises an audiovisual recording of a patient response.~~

54. (Canceled).

55. (Previously presented) The fluid introduction system of claim 14, wherein the impedance data comprises a gauge of a fluid introduction member.

56. (Previously presented) The fluid introduction system of claim 14, wherein the impedance data comprises a length of a fluid introduction member.

57. (Previously presented) The fluid introduction system of claim 14, wherein the impedance data comprises an inner diameter of a fluid conduit.

58. (Previously presented) The fluid introduction system of claim 14, wherein the impedance data comprises a length of a fluid conduit.

Claims 59-66. (Canceled)

67. (Currently amended) A fluid introduction system for performing discography diagnosis, comprising:

an introducer configured to introduce fluid into a spine of a patient, the introducer having a flow-rate dependent impedance opposing the introduction of the fluid and comprising a movable element disposed within the introducer, the movable element including a pressure transducer secured with respect to the movable element such that the pressure transducer is in direct contact with fluid in the introducer; and

an operator configured to actuate the introducer to introduce fluid into the spine of the patient at a constant flow rate that is not controlled by feedback based on a fluid introduction parameter and configured to determine impedance data indicative of the flow rate-dependent

impedance based upon pressure and volume of fluid dispensed during an actuation of the introducer prior to insertion of the introducer into the spine;

a computer readable medium having code that, when executed by a computer, receives:

fluid introduction data indicative of the fluid introduction parameter;

pain level data of the patient responsive to the fluid introduction data; and

concordance data, input separately from the pain level data, indicating whether the pain level of the patient at a time related to the time of the fluid introduction data is a result of a pain symptom or is a result of pain unrelated to the pain symptom, wherein the discography diagnosis is based upon the correlation between the pain level and concordance data and the fluid introduction data.

Claims 68-70. (Canceled).

71. (Currently amended) A fluid introduction system, comprising:

an introducer configured to introduce fluid into a spine of a patient, the introducer having a flow-rate dependent impedance opposing the introduction of the fluid and comprising a syringe including a plunger slidably disposed within the syringe and a pressure transducer secured with respect to the plunger such that the pressure transducer is in direct contact with fluid in the syringe;

an operator configured to actuate the introducer to introduce fluid into the spine of the patient at a constant flow rate that is not controlled by feedback based on a fluid introduction parameter and configured to determine impedance data indicative of the flow rate-dependent impedance based upon pressure and volume of fluid dispensed during an actuation of the introducer prior to insertion of the introducer into the spine; and

a computer readable medium having code that, when executed by a computer, receives:

fluid introduction data indicative of the fluid introduction parameter; and

response data indicative of pain level and concordance of a response of the patient to the introduction of fluid, wherein the concordance response data is input separately from the pain level data and indicates whether the pain level of the patient is a result of a pain symptom or is a result of pain unrelated to the pain symptom.

72. (Previously presented) The system of claim 71, wherein a receivable portion of the plunger is receivable within the syringe and the syringe comprises a cap secured with respect to the receivable portion of the plunger, the pressure transducer being disposed between at least a portion of the cap and at least a portion of the receivable portion of the plunger.

73. (Previously presented) The system of 72, wherein the cap comprises a hole configured to allow fluid present within the reservoir to contact the pressure transducer.

74. (Previously presented) The system of claim 72, wherein the cap and the plunger are not rotatable with respect to one another when the cap is secured with respect to the receivable portion of the plunger.

75. (Previously presented) The system of claim 74, wherein the cap and the receivable portion of the plunger each comprise an asymmetrical portion, the asymmetrical portions of the cap and plunger mating with one another to secure the cap with respect to the plunger.

76. (Previously presented) A fluid introduction system, comprising:

an introducer configured to introduce fluid into a spine of a patient, the introducer comprising a movable element disposed within the introducer, a cap defining a passage and coupled to the movable element, and a pressure transducer secured with respect to the movable element and the cap such that the pressure transducer is in direct contact with fluid in the introducer via the passage;

an operator configured to actuate the introducer to introduce fluid into the spine of the patient;

a computer readable medium having code that, when executed by a computer, receives:

fluid introduction data indicative of a fluid introduction parameter;

response data indicative of pain level of a response of the patient at a time related to a time of the fluid introduction data; and

response data, input separately from the pain level data, indicative of concordance of the response of the patient at the time related to the time of the fluid introduction data, the

concordance data indicating whether the pain level response of the patient is a result of a pain symptom or is a result of pain unrelated to the pain symptom.

77. (Previously presented) The system of claim 76, wherein the cap and the movable element are not rotatable with respect to one another when the cap is secured to the movable element.

78. (Previously presented) The system of claim 77, wherein the cap and the movable element each comprise an asymmetrical portion, the asymmetrical portions of the cap and the movable element mating with one another to secure the cap with respect to the movable element.

79. (Previously presented) The system of claim 76, wherein the fluid introduction parameter is a pressure within an intervertebral disc of the patient at the time of the fluid introduction data.

80. (Previously presented) The system of claim 76, wherein the fluid introduction system is configured to obtain the response data from an observation of the patient or from a response inputted by the patient.

81. (Currently amended) A fluid introduction system, comprising:

an introducer configured to introduce fluid into a spine of a patient, the introducer comprising a syringe including a plunger having a receivable portion slidably disposed within the syringe, the syringe comprising a cap secured with respect to the receivable portion of the plunger and a pressure transducer disposed between at least a portion of the cap and at least a portion of the receivable portion of the plunger such that the pressure transducer is in direct fluid contact with fluid in the syringe;

an operator configured to actuate the introducer to introduce fluid into the spine of the patient; and

a computer readable medium having code that, when executed by a computer, receives:

fluid introduction data indicative of a fluid introduction parameter; and

response data indicative of pain level and concordance of a response of the patient at a time related to the time of the fluid introduction data, the pain and concordance data inputted separately, wherein the concordance response data indicates whether the pain level of the patient is a result of a pain symptom or is a result of pain unrelated to the pain symptom.

82. (Previously presented) The system of claim 81, wherein the cap and the plunger are not rotatable with respect to one another when the cap is secured to the receivable portion of the plunger.

83. (Previously presented) The system of claim 83, wherein the cap and the receivable portion of the plunger each comprise an asymmetrical portion, the asymmetrical portions of the cap and receivable portion mating with one another to secure the cap with respect to the plunger.

84. (New) A fluid introduction system, comprising:

an introducer configured to introduce fluid into a spine of a patient, the introducer having a flow-rate dependent impedance opposing the introduction of the fluid and comprising a syringe including a plunger slidably disposed within the syringe and a pressure transducer secured with respect to the plunger such that the pressure transducer is in direct contact with fluid in the syringe;

an operator configured to actuate the introducer to introduce fluid into the spine of the patient at a constant flow rate that is not controlled by feedback based on a fluid introduction parameter and configured to determine impedance data indicative of the flow rate-dependent impedance based upon pressure and volume of fluid dispensed during an actuation of the introducer prior to insertion of the introducer into the spine; and

a computer readable medium having code that, when executed by a computer, receives:

fluid introduction data indicative of the fluid introduction parameter; and

response data indicative of pain level and concordance of a response of the patient at a time related to the time of the fluid introduction data, wherein the concordance response data is input separately from the pain level data and indicates whether the pain level of the patient is a result of a pain symptom or is a result of pain unrelated to the pain symptom.